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Appellants:	Troy Michael Runge et al.	Docket No.:	16,670
Serial No.:	09/800,645	Group:	1731
Confirmation No:	5221	Examiner:	M. Halpern
Filed:	March 7, 2001	Date:	September 7, 2007

For: METHOD FOR APPLYING CHEMICAL ADDITIVES TO PULP DURING THE PULP PROCESSING AND PRODUCTS MADE BY SAID METHOD

Revised Brief on Appeal to the Board of Patent Appeals and Interferences

Mail Stop Appeal Brief - Patents
Commissioner For Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to 37 C.F.R. 41.37, on May 13, 2007, Appellants previously submitted a Brief in support of their Appeal of the Final Rejection of claims 1-6; 8-19; 22-23 and 77-79.

On September 6, 2007, Appellants received a Notification of Non-Compliant Appeal Brief, mailed August 30, 2007, for failing to properly map out the independent claims and dependent claims argued separately.

Therefore this Revised Brief, which is due September 30, 2007, is submitted to comply with the Notification. This Revised Brief identifies the independent claims and dependent claims argued separately and, for each, refers to the specification by page and line number and, where applicable, refers to the drawings by reference numbers .

Real Party in Interest

The real party in interest is Kimberly-Clark Worldwide, Inc., the assignee of record.

Related Appeals and Interferences

There are no known related appeals and/or interferences.

Status of Claims

Claims 1-6; 8-19; 22-33 and 77-79 remain in the application with claims 1-6; 8-19; 22-33 and 77-79 being finally rejected. Claims 7, 20-21 and 34-76 have been cancelled. The appealed claims include 1-6; 8-19; 22-33 and 77-79 and appear in the CLAIMS APPENDIX of this Brief.

Status of Amendments

No Amendments After Final Rejection have been submitted.

Summary of Claimed Subject Matter

The invention of independent Claim 1 resides in a method for applying chemical additives to the pulp fibers. The method comprises creating a fiber slurry comprising process water and pulp fibers (see specification at page 2, lines 35-36). The fiber slurry 10 (Figure 2) is formed into a wet fibrous web 32 (Figure 2) using a web forming apparatus 30 (Figure 2) and the wet fibrous web is dried 34 (Figure 2) to a predetermined consistency to forming a dried fibrous web (see specification at page 3, line 17). A chemical additive 24 (Figure 2) is applied to the dried fibrous web 36 (Figure 2), thereby forming a chemically treated dried fibrous web (see specification at page 16, lines 1-3). The chemically treated fibers of the chemically treated dried fibrous web are dispersed in water and the water is drained, wherein the chemically treated pulp fibers retain from between 10 to about 100 percent of the applied amount of the chemical additive (see specification at page 3, lines 18-23).

The invention of independent Claim 22 resides in a method for applying a chemical additive to pulp fiber. The method comprises mixing pulp fibers with process water to form a fiber slurry (see specification at page 5, lines 16-17). The fiber slurry 10 (Figure 1) is then transported to a web-forming apparatus 30 (Figure 1) of a pulp sheet machine and a wet fibrous web 32 (Figure 1) is formed . The wet fibrous web is dewatered to a predetermined consistency, thereby forming a dewatered fibrous web 33 (Figure 1) (see specification at page 53, lines 14-15). A chemical additive 35c (Figure 1) is applied to the dewatered fibrous web, thereby forming a chemically treated dewatered fibrous web (see specification at page 5, lines 17-20). The chemically treated pulp fibers of the chemically treated dewatered fibrous web are dispersed in water and the water is drained from the fibers, wherein the chemically treated pulp fibers retain from between 10 to about 100 percent of the applied amount of the chemical additive (see specification at page 5, lines 20-23).

The invention of dependent claims 2, 27 and 28 further provides for dispersing the chemically treated fibers in water on a paper machine (see specification at page 8, lines 21-24 and Figure 3, reference numeral 49).

The invention of dependent claims 8 -13 and 33 further provides for the use particular chemical additives in producing the chemically-treated dried fibrous web (see specification at page 14, lines 22-31).

The invention of dependent claim 19 provides for forming a paper or tissue product from the chemically treated dried fibrous web (see specification at page 5, lines 8-13 and the paragraph bridging pages 14 and 15 referring to Figure 3).

The invention of dependent claims 3, 6, 24 and 26 provides for the chemical additive being present in a z-directional gradient within the web (see specification at page 21, line 25).

Grounds of Rejection To Be Reviewed on Appeal

Ground 1: Whether claims 1-2; 4-5; 8-19; 22-23; 25; 27-33 and 77-79 are anticipated under 35 U.S.C. 102(b) or obvious under 35 U.S.C. 103(a) over U.S. 5,547,541 to Hansen et al. with or without Saint-Cyr (Adsorption Kinetics of Dyes and Yellowing Inhibitors on Pulp Fibers, Master of Engineering Thesis, McGill University, Montreal, Canada, June 1999).

Ground 2: Whether claims 3, 6, 24 and 26 are unpatentable under 35 U.S.C. 103(a) over U.S. 5,547,541 to Hansen et al. in view of U.S. 3,556,931 to Champaigne.

Argument

Ground 1: Rejection of Claims 1-2; 4-5; 8-19; 22-23; 25; 27-33 and 77-79 under 35 U.S.C. 102(b) or under 35 U.S.C. 103(a) over U.S. 5,547,541 to Hansen et al. with or without Saint-Cyr (Adsorption Kinetics of Dyes and Yellowing Inhibitors on Pulp Fibers, Master of Engineering Thesis, McGill University, Montreal, Canada, June 1999).

Hansen et al. discloses the incorporation of particles onto fibers using a binder that is capable of hydrogen bonding with the fiber and bonding to the particles by either hydrogen bonding or coordinate covalent bonding. The binders are applied to a pulp sheet using devices such as sprayers, coaters and immersion applicators. The particles are then added to the pulp sheet by sprinkling, pouring or otherwise. The pulp sheet is then dried. The dried pulp sheets are dry fiberized before being used as a component of an absorbent article, such as diapers. It is asserted that the added chemicals in Hansen et al. are inherently retained in the sheet within Appellants' claimed range of about 10% to about 100% when exposed to water and thus anticipate or render obvious Appellants' claimed invention. The Saint-Cyr thesis describes the adsorption kinetics of dyes on pulp fibers. The relevance of Saint-Cyr as a basis for rejection is not understood. Nevertheless, Appellants believe the teachings of Hansen et al.,

with or without Saint-Cyr, do not anticipate or suggest Appellants' invention for the reasons set forth below.

As an initial matter, the basis for rejection mentions the "chemicals" disclosed by Hansen et al. at columns 19-20. Appellants are still uncertain how this disclosure is being used in the basis for rejection. To be clear, the "chemicals" listed in Table II at columns 19-20 are the particles being bound to the fibers and are designated as being "water-soluble" (col. 19, lines 1-2). Naturally, when exposed to water, these particles will dissolve. In Hansen et al. it is specifically stated that the particles dissolve when exposed to aqueous liquids. After a chemical dissolves, it is no longer retained on a fiber surface, but is instead present in the aqueous phase of the system. See Hansen et al. at column 21, lines 36 – 43, which states: "This high solubility allows the particles to dissolve when exposed to aqueous liquids such as urine, but the hydrogen bonding capacity allows them to adhere to the fibers in the presence of binder but in the absence of aqueous liquid during use by an end user after the manufacturing process is completed. While bound, the particles substantially retain a discrete particulate form instead of dissolving or fusing, at least until they are exposed to an aqueous liquid." Therefore, to the extent the chemicals of columns 19-20 form the basis for rejection, it is not inherent that these particles will be retained at a level of 10 -100% upon redispersal in water as claimed by Appellants.

On the other hand, assuming the basis for rejection is based on the "binder" materials disclosed by Hansen et al., the binders only form hydrogen bonds with the fibers and do not form either ionic or covalent bonds as asserted in the ground for rejection. In this regard, see the Summary of the Invention of Hansen et al. at column 3, lines 43-48 which states: "The binder has a functional group that is capable of forming a hydrogen bond with the fibers, and a functional group that is also capable of forming a hydrogen bond or a coordinate covalent bond with particles that have a hydrogen bonding or coordinate covalent bonding functionality." Also see the sentence bridging columns 4-5, which states: "The fibrous material may be cellulosic or synthetic fibers that are capable of forming hydrogen bonds with the binder, while the particles are selected to be of the type that are capable of forming hydrogen bonds or coordinate covalent bonds with the binder." In addition, see column 4, lines 13-17 which reads: "The superabsorbent particles are capable of forming hydrogen bonds or coordinate covalent bonds with the binder, depending upon the binder, while the binder in turn forms hydrogen bonds with the hydroxyl groups of the cellulose fibers." Further in column 4, lines 43-45, Hansen et al. states: "The binder also forms hydrogen bonds with the hydroxyl groups of the cellulose, thereby securely attaching the superabsorbent particles to the fibers."

The foregoing statements clearly show that Hansen et al. teaches that the binder only attaches to the cellulose fibers via hydrogen bonding. It will be appreciated by those skilled in the art that hydrogen bonds do not survive immersion in water. Consequently, the materials of Hansen et al. do

not inherently anticipate or suggest Appellants' claimed invention. The basis for rejection may be confusing retention of chemicals after dry fiberizing with retention after dispersing the fibers in the presence of water. After dry fiberization, hydrogen bonds would be expected to retain between 10 and 100% of the bound material on the fibers. However, after the same chemically treated pulp sheet is dispersed in water, hydrogen bonding would not be expected to retain the chemical on the fiber surface.

Regarding the Saint-Cyr reference, which discusses Langmuir adsorption kinetics, Appellants reference Langmuir in the Background section of the specification by stating: "Nevertheless, the amount of the chemical additive that can be adsorbed or retained in the paper machine wet end generally follows an adsorption curve exhibiting diminishing incremental adsorption with increasing concentration, similar to that described by Langmuir." This statement is an attempt to explain why it is so difficult to achieve high chemical addition using conventional wet end chemical addition methods. Appellants are not referring to their invention when referencing Langmuir, but rather pointing out a problem that is overcome by Appellants' invention. As such, Appellants fail to see how the teachings of Saint-Cyr overcome the shortcomings of the teachings of Hansen et al. as discussed above. Therefore all of the foregoing discussion applies to the combination of Hansen et al. and Saint-Cyr as well as to Hansen et al. alone.

Fundamentally, there is no teaching or suggestion by Hansen et al. to disperse the chemically treated fibers in water as claimed by Appellants. As previously mentioned, Hansen et al. is directed to absorbent articles, such as diapers. The fibrous materials of Hansen et al. which contain binder and water-soluble particles are dry fiberized to form fluff pulp, as opposed to being subsequently dispersed in water as claimed.

Further Discussion Of Dependent Claims 2, 27 and 28

Further in this regard, Appellants specifically draw attention to dependent claims 2, 27 and 28, which recite that the chemically treated fibers are dispersed in water on a paper machine. This also is not taught or suggested by Hansen et al.,which clearly is limited to dry forming absorbent products from the fibrous materials. Therefore these claims are not anticipated or obvious from the teachings of Hansen et al. and Saint-Cyr.

Further Discussion Of Dependent Claims 8-13 and 33

In addition, regarding dependent claims 8 -13 and 33, while the claimed additives (softening agents, polyhydroxy compounds, strength agents) are mentioned in Hansen et al., there is no teaching or suggestion that they would be retained at a level of 10-100%, especially if the fibrous materials were dispersed in water, which Hansen et al. does not teach or suggest either. These additives don't actually perform their stated functions until the fiber web is dispersed in water and the chemically

treated fibers are thereafter used to form a tissue product. The mere fact that an additive functions in the dry web of Hansen et al. does not mean it will function after dispersing the fiber web in water and subsequently using the fibers to make a tissue product.

Further Discussion Of Dependent Claim 19

Furthermore, in regard to dependent claim 19, it is asserted that Hansen et al. discloses tissue forming. Instead, Hansen et al. discloses laminating particles and binder "between tissue layers under high temperature and pressure to form laminated adherent tissue layers." This is not the same as the subject of Appellants' claim 19, which recites forming a paper or tissue product from said chemically treated dried fibrous web. Hansen et al. is not disclosing tissue making within the meaning of Appellants' claims, but rather pressing chemicals between two previously manufactured tissues.

Ground 2: Whether claims 3, 6, 24 and 26 are unpatentable under 35 U.S.C. 103(a) over U.S. 5,547,541 to Hansen et al. in view of U.S. 3,556,931 to Champaigne

Claims 3, 6, 24 and 26 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Hansen et al. in view of U.S. 3,556,931 to Champaigne. Hansen et al. is applied as set forth in the rejection under Ground 1 above. Hansen et al. is silent regarding a z-direction gradient of the chemical additive. Champaigne discloses a process for making a cellulosic fluffed batt where an additive is added to the batt in a way that only penetrates the surface zone of the web, thus creating a gradient of chemical additive penetration into the web (Champaign column 1, lines 13-27, and column 1, line 64 to col. 2, line 19). It is asserted that it would have been obvious to combine Hansen et al. and Champaigne because the combination would create a product of Hansen et al. having a dense absorbent inner zone and a softer more fluid outer zone, as disclosed by Champaigne (col 1., lines 25-27). However, this basis for rejection fails to suggest Appellants' claimed invention for the reasons discussed above with regard to the shortcomings of the teachings of Hansen et al. In particular, there is no reason for Hansen et al. or Champaigne to provide a chemical additive gradient if the resulting web is to be dispersed in water.

Conclusion

For all of the reasons stated above, it is Appellants' position that all of the appealed claims are patentable over the cited references. It is therefore requested that the rejection of claims 1-6, 8-19, 22-33 and 77-79 be **reversed** by the Board.

Please charge the $500.00 fee (fee code 1402), pursuant to 37 C.F.R. 41.20(b)(2), for filing this Appeal Brief to Kimberly-Clark Worldwide, Inc. deposit account number 11-0875. Any additional prosecutional fees which are due may also be charged to deposit account number 11-0875.

The undersigned may be reached at: (920) 721-3616.

Respectfully submitted,

TROY MICHAEL RUNGE ET AL.

By: _____

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CERTIFICATE OF TRANSMISSION

I, Judy Garot, hereby certify that on September 7, 2007 this document is being facsimile transmitted to the United States Patent and Trademark Office, Fax No. (571) 273-8300.

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Judy Garot

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Claims Appendix

The claims on appeal are:

1. (Previously Presented) A method for preparing chemically treated pulp fiber comprising:

a) creating a fiber slurry comprising process water and pulp fibers;

b) transporting said fiber slurry to a web-forming apparatus of a pulp sheet machine and forming a wet fibrous web;

c) drying said wet fibrous web to a predetermined consistency thereby forming a dried fibrous web;

d) treating said dried fibrous web with an applied amount of a chemical additive thereby forming a chemically treated dried fibrous web containing chemically treated pulp fibers; and

(e) dispersing the chemically treated pulp fibers of the chemically treated dried fibrous web in water and draining the water from the chemically treated pulp fibers, wherein said chemically treated pulp fibers retain from between about 10 to about 100 percent of the applied amount of said chemical additive.

2. (Previously Presented) The method of Claim 1 wherein the chemically treated fibers are dispersed in water on a paper machine.

3. (Previously Presented) The method of Claim 1, wherein said dried chemically treated fibrous web includes a z-direction gradient of said chemical additive.

4. (Previously Presented) The method of Claim 1, further comprising dewatering said wet fibrous web thereby forming a dewatered fibrous web.

5. (Previously Presented) The method of Claim 4, further comprising drying said dewatered fibrous web thereby forming a dried fibrous web.

6. (Previously Presented) The method of Claim 5, wherein said chemically treated dewatered fibrous web includes a z-direction gradient of said chemical additive.

7. Canceled

8. (Previously Presented) The method of Claim 1 or 2, wherein said chemical additive is selected from the group comprising softening agents, dry strength agents, wet strength agents, opacifying agents, dyes, debonding agents, adsorbency agents, sizing agents, optical brighteners, chemical tracers, and mixtures thereof.

9. (Original) The method of Claim 8, wherein said softener is selected from the group consisting of quaternary ammonium compounds, quaternized protein compounds, phospholipids, silicone quaternaries, quaternized, hydrolyzed wheat protein/dimethicone phosphocopolyol copolymer, organoreactive polysiloxanes, polyhydroxy compounds, and silicone gylcols.

10. (Previously Presented) The method of Claim 1 or 2, wherein said chemical additive is a softener.

11. (Previously Presented) The method of Claim 1 or 2, wherein said chemical additive is an absorbency agent.

12. (Previously Presented) The method of Claim 1 or 2, wherein said chemical additive is a wet strength agent.

13. (Previously Presented) The method of Claim 1 or 2, wherein said chemical additive is a dry strength agent.

14. (Original) The method of Claim 1, further comprising creating a chemically treated pulp fiber slurry by redispersing said chemically treated dried fibrous web in water.

15. (Original) The method of Claim 1, wherein said chemical additive is applied to said dried fibrous web in an amount of at least about 0.1 kilograms per metric ton or greater.

16. (Original) The method of Claim 1, wherein said dried fibrous web has a consistency ranging from about 65 percent to about 100 percent.

17. (Original) The method of Claim 1, wherein said dried fibrous web has a consistency ranging from about 85 percent to about 95 percent.

18. (Original) The method of Claim 1, wherein sufficient residence time is provided after said chemical additive is applied to said dried fibrous web to allow for retention of said chemical additive by said pulp fiber of said dried fibrous web.

19. (Original) The method of Claim 1, further comprising forming a paper or tissue product from said chemically treated dried fibrous web.

20.-21. Canceled

22. (Previously Presented) A method for applying a chemical additive to pulp fiber, said method comprising:

a) mixing pulp fibers with process water to form a fiber slurry;

b) transporting said fiber slurry to a web-forming apparatus of a pulp sheet machine and forming a wet fibrous web;

c) dewatering said wet fibrous web to a predetermined consistency thereby forming a dewatered fibrous web;

d) applying an amount of a chemical additive to said dewatered fibrous web thereby forming a chemically treated dewatered fibrous web of chemically treated pulp fibers; and

(e) dispersing the chemically treated pulp fibers of the chemically treated dewatered fibrous web in water and draining the water from the chemically treated pulp fibers, wherein said chemically treated pulp fibers retain from between about 10 to about 100 percent of the applied amount of said chemical additive.

23. (Previously Presented) The method of Claim 22 wherein the chemically treated pulp fibers are dispersed in water on a paper machine.

24. (Original) The method of Claim 22, wherein said chemically treated dried fibrous web includes a gradient of said chemical additive.

25. (Original) The method of Claim 22, further comprising drying said chemically treated dewatered fibrous web to a predetermined consistency thereby forming a chemically treated dried fibrous web.

26. (Original) The method of Claim 25, wherein said chemically treated dewatered fibrous web includes a gradient of said chemical additive.

27. (Original) The method of Claim 25, further comprising transporting said chemically treated dried fibrous web to a paper machine and mixing said dried fibrous web with water thereby forming a chemically treated pulp fiber slurry, wherein said chemically treated pulp slurry containing chemically treated pulp fibers having said chemical additive retained thereby.

28. (Original) The method of Claim 27, further comprising transporting said chemically treated pulp fiber slurry through said paper machine to form a finished paper or tissue product having enhanced quality due to the retention of said chemical additive by said chemically treated pulp fibers.

29. (Original) The method of Claim 27, wherein the amount of said chemical additive retained by said chemically treated pulp fibers is about 0.1 kilogram per metric ton or greater, and the amount of unretained said chemical additive in said water is between 0 and about 50 percent of the applied amount of said chemical additive retained by said chemically treated dewatered fibrous web when said chemically treated pulp fibers are redispersed in water.

30. (Original) The method of Claim 22, wherein the amount of said chemical additive applied to said dewatered fibrous web is about 1 kilograms per metric ton or greater.

31. (Original) The method of Claim 22, wherein the amount of said chemical additive applied to said dewatered fibrous web is about 3 kilograms per metric ton or greater.

32. (Previously Presented) The method of Claim 22, wherein the amount of said chemical additive applied to said dewatered fibrous web is from about 0.1 to about 5 kilograms per metric ton.

33. (Original) The method of Claim 22, wherein said chemical additive is selected from the group comprising softening agents, dry strength agents, wet strength agents, opacifying agents, dyes, debonding agents, absorbency agents, sizing agents, optical brighteners, chemical tracers, and mixtures thereof.

34.-76. Canceled

77. (Previously Presented) The method of Claim 1 wherein the amount of said chemical additive applied to said dried fibrous web is from about 0.1 to about 5 kilograms per metric ton.

78. (Previously Presented) The method of claim 1 wherein the amount of said chemical additive applied to said dried fibrous web is from about 1.5 to about 7.4 kilograms per metric ton.

79. (Previously Presented) The method of Claim 22 wherein the amount of said chemical additive applied to said dried fibrous web is from about 1.5 to about 7.4 kilograms per metric ton.

Evidence Appendix

No evidence is being submitted with this Brief on Appeal.

Related Proceedings Appendix

There are no related proceedings.